



SEQUENCE LISTING

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Tissenbaum, Heidi A.

<120> METHODS FOR IDENTIFYING AGENTS WHICH ALTER HISTONE
PROTEIN ACETYLATION, DECREASE AGING, INCREASE LIFESPAN

<130> 13407-016002

<140> US 09/735,786

<141> 2000-12-13

<150> US 09/461,580

<151> 1999-12-15

<160> 38

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 737

<212> PRT

<213> Mus musculus

<400> 1

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Ala Ala Ala Ala Met Glu Ala Ala Ser Gln Pro Ala Asp Glu Pro Leu
20 25 30
Arg Lys Arg Pro Arg Arg Asp Gly Pro Gly Leu Gly Arg Ser Pro Gly
35 40 45
Glu Pro Ser Ala Ala Val Ala Pro Ala Ala Ala Gly Cys Glu Ala Ala
50 55 60
Ser Ala Ala Ala Pro Ala Ala Leu Trp Arg Glu Ala Ala Gly Ala Ala
65 70 75 80
Ala Ser Ala Glu Arg Glu Ala Pro Ala Thr Ala Val Ala Gly Asp Gly
85 90 95
Asp Asn Gly Ser Gly Leu Arg Arg Glu Pro Arg Ala Ala Asp Asp Phe
100 105 110
Asp Asp Asp Glu Gly Glu Glu Glu Asp Glu Ala Ala Ala Ala Ala Ala
115 120 125
Ala Ala Ala Ile Gly Tyr Arg Asp Asn Leu Leu Leu Thr Asp Gly Leu
130 135 140
Leu Thr Asn Gly Phe His Ser Cys Glu Ser Asp Asp Asp Asp Arg Thr
145 150 155 160
Ser His Ala Ser Ser Ser Asp Trp Thr Pro Arg Pro Arg Ile Gly Pro
165 170 175
Tyr Thr Phe Val Gln Gln His Leu Met Ile Gly Thr Asp Pro Arg Thr
180 185 190
Ile Leu Lys Asp Leu Leu Pro Glu Thr Ile Pro Pro Pro Glu Leu Asp
195 200 205
Asp Met Thr Leu Trp Gln Ile Val Ile Asn Ile Leu Ser Glu Pro Pro
210 215 220

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TECH CENTER 1600/2900

Lys Arg Lys Lys Arg Lys Asp Ile Asn Thr Ile Glu Asp Ala Val Lys
 225 230 235 240
 Leu Leu Gln Glu Cys Lys Lys Ile Ile Val Leu Thr Gly Ala Gly Val
 245 250 255
 Ser Val Ser Cys Gly Ile Pro Asp Phe Arg Ser Arg Asp Gly Ile Tyr
 260 265 270
 Ala Arg Leu Ala Val Asp Phe Pro Asp Leu Pro Asp Pro Gln Ala Met
 275 280 285
 Phe Asp Ile Glu Tyr Phe Arg Lys Asp Pro Arg Pro Phe Phe Lys Phe
 290 295 300
 Ala Lys Glu Ile Tyr Pro Gly Gln Phe Gln Pro Ser Leu Cys His Lys
 305 310 315 320
 Phe Ile Ala Leu Ser Asp Lys Glu Gly Lys Leu Leu Arg Asn Tyr Thr
 325 330 335
 Gln Asn Ile Asp Thr Leu Glu Gln Val Ala Gly Ile Gln Arg Ile Leu
 340 345 350
 Gln Cys His Gly Ser Phe Ala Thr Ala Ser Cys Leu Ile Cys Lys Tyr
 355 360 365
 Lys Val Asp Cys Glu Ala Val Arg Gly Asp Ile Phe Asn Gln Val Val
 370 375 380
 Pro Arg Cys Pro Arg Cys Pro Ala Asp Glu Pro Leu Ala Ile Met Lys
 385 390 395 400
 Pro Glu Ile Val Phe Phe Gly Glu Asn Leu Pro Glu Gln Phe His Arg
 405 410 415
 Ala Met Lys Tyr Asp Lys Asp Glu Val Asp Leu Leu Ile Val Ile Gly
 420 425 430
 Ser Ser Leu Lys Val Arg Pro Val Ala Leu Ile Pro Ser Ser Ile Pro
 435 440 445
 His Glu Val Pro Gln Ile Leu Ile Asn Arg Glu Pro Leu Pro His Leu
 450 455 460
 His Phe Asp Val Glu Leu Leu Gly Asp Cys Asp Val Ile Ile Asn Glu
 465 470 475 480
 Leu Cys His Arg Leu Gly Gly Glu Tyr Ala Lys Leu Cys Cys Asn Pro
 485 490 495
 Val Lys Leu Ser Glu Ile Thr Glu Lys Pro Pro Arg Pro Gln Lys Glu
 500 505 510
 Leu Val His Leu Ser Glu Leu Pro Thr Pro Leu His Ile Ser Glu
 515 520 525
 Asp Ser Ser Ser Pro Glu Arg Thr Val Pro Gln Asp Ser Ser Val Ile
 530 535 540
 Ala Thr Leu Val Asp Gln Ala Thr Asn Asn Asn Val Asn Asp Leu Glu
 545 550 555 560
 Val Ser Glu Ser Ser Cys Val Glu Glu Lys Pro Gln Glu Val Gln Thr
 565 570 575
 Ser Arg Asn Val Glu Asn Ile Asn Val Glu Asn Pro Asp Phe Lys Ala
 580 585 590
 Val Gly Ser Ser Thr Ala Asp Lys Asn Glu Arg Thr Ser Val Ala Glu
 595 600 605
 Thr Val Arg Lys Cys Trp Pro Asn Arg Leu Ala Lys Glu Gln Ile Ser
 610 615 620
 Lys Arg Leu Glu Gly Asn Gln Tyr Leu Phe Val Pro Pro Asn Arg Tyr
 625 630 635 640
 Ile Phe His Gly Ala Glu Val Tyr Ser Asp Ser Glu Asp Asp Val Leu
 645 650 655
 Ser Ser Ser Ser Cys Gly Ser Asn Ser Asp Ser Gly Thr Cys Gln Ser
 660 665 670
 Pro Ser Leu Glu Glu Pro Leu Glu Asp Glu Ser Glu Ile Glu Glu Phe

		675					680					685					
Tyr	Asn	Gly	Leu	Glu	Asp	Asp	Thr	Glu	Arg	Pro	Glu	Cys	Ala	Gly	Gly		
	690					695					700						
Ser	Gly	Phe	Gly	Ala	Asp	Gly	Gly	Asp	Gln	Glu	Val	Val	Asn	Glu	Ala		
705					710				715						720		
Ile	Ala	Thr	Arg	Gln	Glu	Leu	Thr	Asp	Val	Asn	Tyr	Pro	Ser	Asp	Lys		
				725					730					735			

Ser

<210> 2
 <211> 272
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 2

Ile	Asn	Lys	Val	Leu	Cys	Thr	Arg	Leu	Arg	Leu	Ser	Asn	Phe	Phe	Thr		
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Ile	Asp	His	Phe	Ile	Gln	Lys	Leu	His	Thr	Ala	Arg	Lys	Ile	Leu	Val		
			20					25					30				
Leu	Thr	Gly	Ala	Gly	Val	Ser	Thr	Ser	Leu	Gly	Ile	Pro	Asp	Phe	Arg		
		35					40					45					
Ser	Ser	Glu	Gly	Phe	Tyr	Ser	Lys	Ile	Lys	His	Leu	Gly	Leu	Asp	Asp		
	50					55				60							
Pro	Gln	Asp	Val	Phe	Asn	Tyr	Asn	Ile	Phe	Met	His	Asp	Pro	Ser	Val		
65					70				75						80		
Phe	Tyr	Asn	Ile	Ala	Asn	Met	Val	Leu	Pro	Pro	Glu	Lys	Ile	Tyr	Ser		
				85				90						95			
Pro	Leu	His	Ser	Phe	Ile	Lys	Met	Leu	Gln	Met	Lys	Gly	Lys	Leu	Leu		
			100					105					110				
Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Asn	Leu	Glu	Ser	Tyr	Ala	Gly	Ile		
	115						120					125					
Ser	Thr	Asp	Lys	Leu	Val	Gln	Cys	His	Gly	Ser	Phe	Ala	Thr	Ala	Thr		
	130					135					140						
Cys	Val	Thr	Cys	His	Trp	Asn	Leu	Pro	Gly	Glu	Arg	Ile	Phe	Asn	Lys		
145					150				155						160		
Ile	Arg	Asn	Leu	Glu	Leu	Pro	Leu	Cys	Pro	Tyr	Cys	Tyr	Lys	Lys	Arg		
			165					170						175			
Arg	Glu	Tyr	Phe	Pro	Glu	Gly	Tyr	Asn	Asn	Lys	Val	Gly	Val	Ala	Ala		
			180					185					190				
Ser	Gln	Gly	Ser	Met	Ser	Glu	Arg	Pro	Pro	Tyr	Ile	Leu	Asn	Ser	Tyr		
		195					200					205					
Gly	Val	Leu	Lys	Pro	Asp	Ile	Thr	Phe	Phe	Gly	Glu	Ala	Leu	Pro	Asn		
	210					215					220						
Lys	Phe	His	Lys	Ser	Ile	Arg	Glu	Asp	Ile	Leu	Glu	Cys	Asp	Leu	Leu		
225					230				235						240		
Ile	Cys	Ile	Gly	Thr	Ser	Leu	Lys	Val	Ala	Pro	Val	Ser	Glu	Ile	Val		
				245					250					255			
Asn	Met	Val	Pro	Ser	His	Val	Pro	Gln	Val	Leu	Ile	Asn	Arg	Asp	Pro		
			260					265					270				

<210> 3
 <211> 267
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 3

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Ile Asn Lys Val Leu Ser Thr Arg Leu Arg Leu Pro Asn Phe Asn Thr
 1          5          10          15
Ile Asp His Phe Thr Ala Thr Leu Arg Asn Ala Lys Lys Ile Leu Val
          20          25          30
Leu Thr Gly Ala Gly Val Ser Thr Ser Leu Gly Ile Pro Asp Phe Arg
          35          40          45
Ser Ser Glu Gly Phe Tyr Ser Lys Ile Arg His Leu Gly Leu Glu Asp
          50          55          60
Pro Gln Asp Val Phe Asn Leu Asp Ile Phe Leu Gln Asp Pro Ser Val
65          70          75          80
Phe Tyr Asn Ile Ala His Met Val Leu Pro Pro Glu Asn Met Tyr Ser
          85          90          95
Pro Leu His Ser Phe Ile Lys Met Leu Gln Asp Lys Gly Lys Leu Leu
          100          105          110
Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr Ala Gly Ile
          115          120          125
Asp Pro Asp Lys Leu Val Gln Cys His Gly Ser Phe Ala Thr Ala Ser
          130          135          140
Cys Val Thr Cys His Trp Gln Ile Pro Gly Glu Lys Ile Phe Glu Asn
145          150          155          160
Ile Arg Asn Leu Glu Leu Pro Leu Cys Pro Tyr Cys Tyr Gln Lys Arg
          165          170          175
Lys Gln Tyr Phe Pro Met Ser Asn Gly Asn Asn Thr Val Gln Thr Asn
          180          185          190
Ile Asn Phe Asn Ser Pro Ile Leu Lys Ser Tyr Gly Val Leu Lys Pro
          195          200          205
Asp Met Thr Phe Phe Gly Glu Ala Leu Pro Ser Arg Phe His Lys Thr
          210          215          220
Ile Arg Lys Asp Ile Leu Glu Cys Asp Leu Leu Ile Cys Ile Gly Thr
225          230          235          240
Ser Leu Lys Val Ala Pro Val Ser Glu Ile Val Asn Met Val Pro Ser
          245          250          255
His Val Pro Gln Ile Leu Ile Asn Arg Asp Met
          260          265

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<210> 4

<211> 245

<212> PRT

<213> Mus musculus

<400> 4

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Val Ile Asn Ile Leu Ser Glu Pro Pro Lys Arg Lys Lys Arg Lys Asp
 1          5          10          15
Ile Asn Thr Ile Glu Asp Ala Val Lys Leu Leu Gln Glu Cys Lys Lys
          20          25          30
Ile Ile Val Leu Thr Gly Ala Gly Val Ser Val Ser Cys Gly Ile Pro
          35          40          45
Asp Phe Arg Ser Arg Asp Gly Ile Tyr Ala Arg Leu Ala Val Asp Phe
          50          55          60
Pro Asp Leu Pro Asp Pro Gln Ala Met Phe Asp Ile Glu Tyr Phe Arg
65          70          75          80
Lys Asp Pro Arg Pro Phe Phe Lys Phe Ala Lys Glu Ile Tyr Pro Gly
          85          90          95
Gln Phe Gln Pro Ser Leu Cys His Lys Phe Ile Ala Leu Ser Asp Lys
          100          105          110
Glu Gly Lys Leu Leu Arg Asn Tyr Thr Gln Asn Ile Asp Thr Leu Glu
          115          120          125

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Gln Val Ala Gly Ile Gln Arg Ile Leu Gln Cys His Gly Ser Phe Ala
 130 135 140
 Thr Ala Ser Cys Leu Ile Cys Lys Tyr Lys Val Asp Cys Glu Ala Val
 145 150 155 160
 Arg Gly Asp Ile Phe Asn Gln Val Val Pro Arg Cys Pro Arg Cys Pro
 165 170 175
 Ala Asp Glu Pro Leu Ala Ile Met Lys Pro Glu Ile Val Phe Phe Gly
 180 185 190
 Glu Asn Leu Pro Glu Gln Phe His Arg Ala Met Lys Tyr Asp Lys Asp
 195 200 205
 Glu Val Asp Leu Leu Ile Val Ile Gly Ser Ser Leu Lys Val Arg Pro
 210 215 220
 Val Ala Leu Ile Pro Ser Ser Ile Pro His Glu Val Pro Gln Ile Leu
 225 230 235 240
 Ile Asn Arg Glu Pro
 245

<210> 5

<211> 237

<212> PRT

<213> Salmonella typhimurium

<400> 5

Met Met Glu Asn Pro Arg Val Leu Val Leu Thr Gly Ala Gly Ile Ser
 1 5 10 15
 Ala Glu Ser Gly Ile Arg Thr Phe Arg Ala Ala Asp Gly Leu Trp Glu
 20 25 30
 Glu His Arg Val Glu Asp Val Ala Thr Pro Glu Gly Phe Ala Arg Asn
 35 40 45
 Pro Gly Leu Val Gln Thr Phe Tyr Asn Ala Arg Arg Gln Gln Leu Gln
 50 55 60
 Gln Pro Glu Ile Gln Pro Asn Ala Ala His Leu Ala Leu Ala Asn Leu
 65 70 75 80
 Lys Lys Arg Leu Ala Ile Ala Phe Leu Leu Val Thr Gln Asn Ile Asp
 85 90 95
 Asn Leu His Glu Arg Ala Gly Asn Arg Asn Ile Ile Gln Met His Gly
 100 105 110
 Glu Leu Leu Lys Val Arg Cys Ser Gln Ser Gly Gln Ile Leu Glu Trp
 115 120 125
 Asn Gly Asp Val Met Pro Glu Asp Lys Cys His Cys Cys Gln Phe Pro
 130 135 140
 Ala Pro Leu Arg Pro His Val Val Trp Phe Gly Glu Met Pro Leu Gly
 145 150 155 160
 Met Asp Glu Ile Tyr Met Ala Leu Ser Met Ala Asp Ile Phe Ile Ala
 165 170 175
 Ile Gly Thr Ser Gly His Val Tyr Pro Ala Ala Gly Phe Val His Glu
 180 185 190
 Ala Lys Leu His Gly Ala His Thr Val Glu Leu Asn Leu Glu Pro Ser
 195 200 205
 Gln Val Gly Asn Glu Phe Glu Glu Lys His Tyr Gly Pro Ala Ser Gln
 210 215 220
 Val Val Pro Glu Phe Val Asp Lys Phe Leu Lys Gly Leu
 225 230 235

<210> 6

<211> 21

<212> PRT

<213> Homo sapiens

<400> 6

Ala	Arg	Thr	Lys	Gln	Thr	Ala	Arg	Lys	Ser	Thr	Gly	Gly	Lys	Ala	Pro
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Arg	Lys	Gln	Leu	Cys											
			20												

<210> 7

<211> 20

<212> PRT

<213> Homo sapiens

<400> 7

Ser	Gly	Arg	Gly	Lys	Gly	Gly	Lys	Gly	Leu	Gly	Lys	Gly	Gly	Ala	Lys
1				5					10					15	
Arg	His	Arg	Cys												
			20												

<210> 8

<211> 19

<212> PRT

<213> Homo sapiens

<400> 8

Ala	Gly	Gly	Lys	Gly	Gly	Lys	Gly	Met	Gly	Lys	Val	Gly	Ala	Lys	Arg
1				5					10					15	
His	Ser	Cys													

<210> 9

<211> 128

<212> PRT

<213> Mus musculus

<400> 9

Ile	Val	Leu	Thr	Gly	Ala	Gly	Val	Ser	Val	Ser	Cys	Gly	Ile	Pro	Asp
1				5					10					15	
Phe	Arg	Ser	Arg	Asp	Gly	Ile	Tyr	Ala	Arg	Leu	Ala	Val	Asp	Phe	Pro
			20				25					30			
Asp	Leu	Pro	Asp	Pro	Gln	Ala	Met	Phe	Asp	Ile	Glu	Tyr	Phe	Arg	Lys
		35				40					45				
Asp	Pro	Arg	Pro	Phe	Phe	Lys	Phe	Ala	Lys	Glu	Ile	Tyr	Pro	Gly	Gln
	50				55					60					
Phe	Gln	Pro	Ser	Leu	Cys	His	Lys	Phe	Ile	Ala	Leu	Ser	Asp	Lys	Glu
65				70					75					80	
Gly	Lys	Leu	Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Thr	Leu	Glu	Gln
			85				90						95		
Val	Ala	Gly	Ile	Gln	Arg	Ile	Leu	Gln	Cys	His	Gly	Ser	Phe	Ala	Thr
			100				105					110			
Ala	Ser	Cys	Leu	Ile	Cys	Lys	Tyr	Lys	Val	Asp	Cys	Glu	Ala	Val	Arg
		115					120					125			

<210> 10

<211> 128

<212> PRT

<213> Saccharomyces cerevisiae

<400> 10

Leu	Val	Leu	Thr	Gly	Ala	Gly	Val	Ser	Thr	Ser	Leu	Gly	Ile	Pro	Asp
1				5					10					15	
Phe	Arg	Ser	Ser	Glu	Gly	Phe	Tyr	Ser	Lys	Ile	Lys	His	Leu	Gly	Leu
			20					25					30		
Asp	Asp	Pro	Gln	Asp	Val	Phe	Asn	Tyr	Asn	Ile	Phe	Met	His	Asp	Pro
		35					40					45			
Ser	Val	Phe	Tyr	Asn	Ile	Ala	Asn	Met	Val	Leu	Pro	Pro	Glu	Lys	Ile
	50					55					60				
Tyr	Ser	Pro	Leu	His	Ser	Phe	Ile	Lys	Met	Leu	Gln	Met	Lys	Gly	Lys
65					70				75						80
Leu	Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Asn	Leu	Glu	Ser	Tyr	Ala
			85					90						95	
Gly	Ile	Ser	Thr	Asp	Lys	Leu	Val	Gln	Cys	His	Gly	Ser	Phe	Ala	Thr
			100					105					110		
Ala	Thr	Cys	Val	Thr	Cys	His	Trp	Asn	Leu	Pro	Gly	Glu	Arg	Ile	Phe
		115					120					125			

<210> 11

<211> 336

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 11

Ala	Ile	Asn	Lys	Val	Leu	Cys	Thr	Arg	Leu	Arg	Leu	Ser	Asn	Phe	Phe
1				5					10					15	
Thr	Ile	Asp	His	Phe	Ile	Gln	Lys	Leu	His	Thr	Ala	Arg	Lys	Ile	Leu
			20					25					30		
Val	Leu	Thr	Gly	Ala	Gly	Val	Ser	Thr	Ser	Leu	Gly	Ile	Pro	Asp	Phe
		35				40					45				
Arg	Ser	Ser	Glu	Gly	Phe	Tyr	Ser	Lys	Ile	Lys	His	Leu	Gly	Leu	Asp
	50				55					60					
Asp	Pro	Gln	Asp	Val	Phe	Asn	Tyr	Asn	Ile	Phe	Met	His	Asp	Pro	Ser
65				70					75						80
Val	Phe	Tyr	Asn	Ile	Ala	Asn	Met	Val	Leu	Pro	Pro	Glu	Lys	Ile	Tyr
			85					90					95		
Ser	Pro	Leu	His	Ser	Phe	Ile	Lys	Met	Leu	Gln	Met	Lys	Gly	Lys	Leu
			100				105						110		
Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Asn	Leu	Glu	Ser	Tyr	Ala	Gly
		115					120					125			
Ile	Ser	Thr	Asp	Lys	Leu	Val	Gln	Cys	His	Gly	Ser	Phe	Ala	Thr	Ala
	130					135					140				
Thr	Cys	Val	Thr	Cys	His	Trp	Asn	Leu	Pro	Gly	Glu	Arg	Ile	Phe	Asn
145				150					155						160
Lys	Ile	Arg	Asn	Leu	Glu	Leu	Pro	Leu	Cys	Pro	Tyr	Cys	Tyr	Lys	Lys
			165					170					175		
Arg	Arg	Glu	Tyr	Phe	Pro	Glu	Gly	Tyr	Asn	Asn	Lys	Val	Gly	Val	Ala
			180				185						190		
Ala	Ser	Gln	Gly	Ser	Met	Ser	Glu	Arg	Pro	Pro	Tyr	Ile	Leu	Asn	Ser
	195					200						205			
Tyr	Gly	Val	Leu	Lys	Pro	Asp	Ile	Thr	Phe	Phe	Gly	Glu	Ala	Leu	Pro
	210				215						220				
Asn	Lys	Phe	His	Lys	Ser	Ile	Arg	Glu	Asp	Ile	Leu	Glu	Cys	Asp	Leu
225				230					235						240
Leu	Ile	Cys	Ile	Gly	Thr	Ser	Leu	Lys	Val	Ala	Pro	Val	Ser	Glu	Ile
			245					250						255	

Val	Asn	Met	Val	Pro	Ser	His	Val	Pro	Gln	Val	Leu	Ile	Asn	Arg	Asp
		260						265					270		
Pro	Val	Lys	His	Ala	Glu	Phe	Asp	Leu	Ser	Leu	Leu	Gly	Tyr	Cys	Asp
		275					280					285			
Asp	Ile	Ala	Ala	Met	Val	Ala	Gln	Lys	Cys	Gly	Trp	Thr	Ile	Pro	His
	290					295					300				
Lys	Lys	Trp	Asn	Asp	Leu	Lys	Asn	Lys	Asn	Phe	Lys	Cys	Gln	Glu	Lys
305					310					315				320	
Asp	Lys	Gly	Val	Tyr	Val	Val	Thr	Ser	Asp	Glu	His	Pro	Lys	Thr	Leu
			325						330					335	

<210> 12

<211> 327

<212> PRT

<213> Mus musculus

<400> 12

Val	Ile	Asn	Ile	Leu	Ser	Glu	Pro	Pro	Lys	Arg	Lys	Lys	Arg	Lys	Asp
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Ile	Asn	Thr	Ile	Glu	Asp	Ala	Val	Lys	Leu	Leu	Gln	Glu	Cys	Lys	Lys
			20					25					30		
Ile	Ile	Val	Leu	Thr	Gly	Ala	Gly	Val	Ser	Val	Ser	Cys	Gly	Ile	Pro
		35				40						45			
Asp	Phe	Arg	Ser	Arg	Asp	Gly	Ile	Tyr	Ala	Arg	Leu	Ala	Val	Asp	Phe
	50					55					60				
Pro	Asp	Leu	Pro	Asp	Pro	Gln	Ala	Met	Phe	Asp	Ile	Glu	Tyr	Phe	Arg
65					70					75					80
Lys	Asp	Pro	Arg	Pro	Phe	Phe	Lys	Phe	Ala	Lys	Glu	Ile	Tyr	Pro	Gly
				85					90					95	
Gln	Phe	Gln	Pro	Ser	Leu	Cys	His	Lys	Phe	Ile	Ala	Leu	Ser	Asp	Lys
			100					105					110		
Glu	Gly	Lys	Leu	Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Thr	Leu	Glu
	115						120					125			
Gln	Val	Ala	Gly	Ile	Gln	Arg	Ile	Leu	Gln	Cys	His	Gly	Ser	Phe	Ala
	130					135					140				
Thr	Ala	Ser	Cys	Leu	Ile	Cys	Lys	Tyr	Lys	Val	Asp	Cys	Glu	Ala	Val
145					150					155					160
Arg	Gly	Asp	Ile	Phe	Asn	Gln	Val	Val	Pro	Arg	Cys	Pro	Arg	Cys	Pro
				165					170					175	
Ala	Asp	Glu	Pro	Leu	Ala	Ile	Met	Lys	Pro	Glu	Ile	Val	Phe	Phe	Gly
			180					185					190		
Glu	Asn	Leu	Pro	Glu	Gln	Phe	His	Arg	Ala	Met	Lys	Tyr	Asp	Lys	Asp
	195						200					205			
Glu	Val	Asp	Leu	Leu	Ile	Val	Ile	Gly	Ser	Ser	Leu	Lys	Val	Arg	Pro
	210					215					220				
Val	Ala	Leu	Ile	Pro	Ser	Ser	Ile	Pro	His	Glu	Val	Pro	Gln	Ile	Leu
225					230					235					240
Ile	Asn	Arg	Glu	Pro	Leu	Pro	His	Leu	His	Phe	Asp	Val	Glu	Leu	Leu
				245					250					255	
Gly	Asp	Cys	Asp	Val	Ile	Ile	Asn	Glu	Leu	Cys	His	Arg	Leu	Gly	Gly
	260							265					270		
Glu	Tyr	Ala	Lys	Leu	Cys	Cys	Asn	Pro	Val	Lys	Leu	Ser	Glu	Ile	Thr
	275						280					285			
Glu	Lys	Pro	Pro	Arg	Pro	Gln	Lys	Glu	Leu	Val	His	Leu	Ser	Glu	Leu
	290					295					300				
Pro	Pro	Thr	Pro	Leu	His	Ile	Ser	Glu	Asp	Ser	Ser	Ser	Pro	Glu	Arg
305					310					315					320

Thr Val Pro Gln Asp Ser Ser
325

<210> 13

<211> 237

<212> PRT

<213> *Salmonella typhimurium*

<400> 13

Met	Met	Glu	Asn	Pro	Arg	Val	Leu	Val	Leu	Thr	Gly	Ala	Gly	Ile	Ser
1				5					10					15	
Ala	Glu	Ser	Gly	Ile	Arg	Thr	Phe	Arg	Ala	Ala	Asp	Gly	Leu	Trp	Glu
			20					25					30		
Glu	His	Arg	Val	Glu	Asp	Val	Ala	Thr	Pro	Glu	Gly	Pro	Ala	Arg	Asn
		35					40					45			
Pro	Gly	Leu	Val	Gln	Thr	Phe	Tyr	Asn	Ala	Arg	Arg	Gln	Gln	Leu	Gln
	50					55					60				
Gln	Pro	Glu	Ile	Gln	Pro	Asn	Ala	Ala	His	Leu	Ala	Leu	Ala	Asn	Leu
65					70					75					80
Lys	Lys	Arg	Leu	Ala	Ile	Ala	Phe	Leu	Leu	Val	Thr	Gln	Asn	Ile	Asp
				85					90					95	
Asn	Leu	His	Glu	Arg	Ala	Gly	Asn	Arg	Asn	Ile	Ile	Gln	Met	His	Gly
			100					105					110		
Glu	Leu	Leu	Lys	Val	Arg	Cys	Ser	Gln	Ser	Gly	Gln	Ile	Leu	Glu	Trp
		115					120					125			
Asn	Gly	Asp	Val	Met	Pro	Glu	Asp	Lys	Cys	His	Cys	Cys	Gln	Phe	Pro
	130						135					140			
Ala	Pro	Leu	Arg	Pro	His	Val	Val	Trp	Phe	Gly	Glu	Met	Pro	Leu	Gly
145					150					155					160
Met	Asp	Glu	Ile	Tyr	Met	Ala	Leu	Ser	Met	Ala	Asp	Ile	Phe	Ile	Ala
				165					170					175	
Ile	Gly	Thr	Ser	Gly	His	Val	Tyr	Pro	Ala	Ala	Gly	Phe	Val	His	Glu
			180					185					190		
Ala	Lys	Leu	His	Gly	Ala	His	Thr	Val	Glu	Leu	Asn	Leu	Glu	Pro	Ser
		195					200					205			
Gln	Val	Gly	Asn	Glu	Phe	Glu	Lys	His	Tyr	Gly	Pro	Ala	Ser	Gln	
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<211> 106

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 14

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			20					25					30		
Leu	Asp	Asp	Pro	Gln	Asp	Val	Phe	Asn	Tyr	Asn	Ile	Phe	Met	His	Asp
		35					40					45			
Pro	Ser	Val	Phe	Tyr	Asn	Ile	Ala	Asn	Met	Val	Leu	Pro	Pro	Glu	Lys
	50					55					60				
Ile	Tyr	Ser	Pro	Leu	His	Ser	Phe	Ile	Lys	Met	Leu	Gln	Met	Lys	Gly
65					70					75					80
Lys	Leu	Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Asn	Leu	Glu	Ser	Tyr

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Ala	Gly	Ile	Ser	Thr	Asp	Lys	Leu	Val	Gln		
			100					105			

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 <213> *Saccharomyces cerevisiae*

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 35 40 45
 Pro Ser Val Phe Tyr Asn Ile Ala His Met Val Leu Pro Pro Glu Asn
 50 55 60
 Met Tyr Ser Pro Leu His Ser Phe Ile Lys Met Leu Gln Asp Lys Gly
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 Lys Leu Leu Arg Asn Tyr Thr Gln Asn Ile Asp Asn Leu Glu Ser Tyr
 85 90 95
 Ala Gly Ile Asp Pro Asp Lys Leu Val Gln
 100 105

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 <211> 107
 <212> PRT
 <213> *Saccharomyces cerevisiae*

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 20 25 30
 Lys Leu Pro Tyr Pro Glu Ala Val Phe Asp Val Asp Phe Phe Gln Ser
 35 40 45
 Asp Pro Leu Pro Phe Tyr Thr Leu Ala Lys Glu Leu Tyr Pro Gly Asn
 50 55 60
 Phe Arg Pro Ser Lys Phe His Tyr Leu Leu Lys Leu Phe Gln Asp Lys
 65 70 75 80
 Asp Val Leu Lys Arg Val Tyr Thr Gln Asn Ile Asp Thr Leu Glu Arg
 85 90 95
 Gln Ala Gly Val Lys Asp Asp Leu Ile Ile Glu
 100 105

<210> 17
 <211> 131
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 17
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[illegible]

<210> 18

<211> 117

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 18

[illegible]

<210> 19

<211> 106

<212> PRT

<213> Mus musculus

<400> 19

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			20					25					30		
Pro	Asp	Leu	Pro	Asp	Pro	Gln	Ala	Met	Phe	Asp	Ile	Glu	Tyr	Phe	Arg
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Lys	Asp	Pro	Arg	Pro	Phe	Phe	Lys	Phe	Ala	Lys	Glu	Ile	Tyr	Pro	Gly
	50					55					60				
Gln	Phe	Gln	Pro	Ser	Leu	Cys	His	Lys	Phe	Ile	Ala	Leu	Ser	Asp	Lys
65					70				75					80	
Glu	Gly	Lys	Leu	Leu	Arg	Asn	Tyr	Thr	Gln	Asn	Ile	Asp	Thr	Leu	Glu
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Gln	Val	Ala	Gly	Ile	Gln	Arg	Ile	Leu	Gln						
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 <212> PRT
 <213> Mus musculus

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 His Leu Pro Tyr Pro Glu Ala Ile Phe Glu Ile Ser Tyr Phe Lys Lys
 35 40 45
 His Pro Glu Pro Phe Phe Ala Leu Ala Lys Glu Leu Tyr Pro Gly Gln
 50 55 60
 Phe Lys Pro Thr Ile Cys His Tyr Phe Ile Arg Leu Leu Lys Glu Lys
 65 70 75 80
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 85 90 95
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 100 105

<210> 21
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 <212> PRT
 <213> Mus musculus

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 Phe Met Leu Ala Lys Glu Leu Tyr Pro Gly His Tyr Arg Pro Asn Val
 35 40 45
 Thr His Tyr Phe Leu Arg Leu His Asp Lys Glu Leu Leu Leu Arg
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<220>
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 Ala Pro Lys Phe Asp Thr Thr Phe Glu Asn Ala Arg Pro Ser Lys Thr
 35 40 45
 His Met Ala Leu Val Gln Leu Glu Arg Met Gly Phe Leu Ser Phe Leu

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<210> 23
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      20              25              30
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      35              40              45
Thr Trp Pro Glu Asn Leu Trp Ala Gly Leu Asn Ser Pro Leu Thr Asn
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Pro Thr Gln His Thr Trp Leu
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<210> 24
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<220>
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Leu Ala Thr Pro Gln Ala Phe Ala Arg Asn Pro Ser Gln Val Trp Glu
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Phe Tyr His Tyr Arg Arg Glu Val Met Arg Ser Lys Glu Pro Asn Pro
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Gly His Leu Ala Ile Ala Gln Cys Glu Ala Arg
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gcc atg gag gcc gcg tcg cag ccg gcg gac gag ccg ctc cgc aag agg Ala Met Glu Ala Ala Ser Gln Pro Ala Asp Glu Pro Leu Arg Lys Arg	152
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ccc cgc cga gac ggg cct ggc ctc ggg cgc agc ccg ggc gag ccg agc Pro Arg Arg Asp Gly Pro Gly Leu Gly Arg Ser Pro Gly Glu Pro Ser	200
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55 60 65	
gcc ccg gcg gcg ctg tgg cgg gag gcg gca ggg gcg gcg gcg agc gcg Ala Pro Ala Ala Leu Trp Arg Glu Ala Ala Gly Ala Ala Ala Ser Ala	296
70 75 80	
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85 90 95	
tcc ggc ctg cgg cgg gag ccg agg gcg gct gac gac ttc gac gac gac Ser Gly Leu Arg Arg Glu Pro Arg Ala Ala Asp Asp Phe Asp Asp Asp	392
100 105 110 115	
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atc ggc tac cga gac aac ctc ctg ttg acc gat gga ctc ctc act aat Ile Gly Tyr Arg Asp Asn Leu Leu Leu Thr Asp Gly Leu Leu Thr Asn	488
135 140 145	
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150 155 160	
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165 170 175	
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180 185 190 195	
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200 205 210	
ctg tgg cag att gtt att aat atc ctt tca gaa cca cca aag cgg aaa Leu Trp Gln Ile Val Ile Asn Ile Leu Ser Glu Pro Pro Lys Arg Lys	728

215										220					225					
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Cys	Gly	Ile	Pro	Asp	Phe	Arg	Ser	Arg	Asp	Gly	Ile	Tyr	Ala	Arg	Leu					
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Glu	Tyr	Phe	Arg	Lys	Asp	Pro	Arg	Pro	Phe	Phe	Lys	Phe	Ala	Lys	Glu					
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cct	agg	tgc	cca	gct	gat	gag	cca	ctt	gcc	atc	atg	aag	cca	gag	att	1256				
Pro	Arg	Cys	Pro	Ala	Asp	Glu	Pro	Leu	Ala	Ile	Met	Lys	Pro	Glu	Ile					
390						395						400								
gtc	ttc	ttt	ggg	gaa	aac	tta	cca	gaa	cag	ttt	cat	aga	gcc	atg	aag	1304				
Val	Phe	Phe	Gly	Glu	Asn	Leu	Pro	Glu	Gln	Phe	His	Arg	Ala	Met	Lys					
405						410						415								
tat	gac	aaa	gat	gaa	gtt	gac	ctc	ctc	att	gtt	att	gga	tct	tct	ctg	1352				
Tyr	Asp	Lys	Asp	Glu	Val	Asp	Leu	Leu	Ile	Val	Ile	Gly	Ser	Ser	Leu					
420				425				430				435								
aaa	gtg	aga	cca	gta	gca	cta	att	cca	agt	tct	ata	ccc	cat	gaa	gtg	1400				
Lys	Val	Arg	Pro	Val	Ala	Leu	Ile	Pro	Ser	Ser	Ile	Pro	His	Glu	Val					
			440						445						450					

cct caa ata tta ata aat agg gaa cct ttg cct cat cta cat ttt gat	1448
Pro Gln Ile Leu Ile Asn Arg Glu Pro Leu Pro His Leu His Phe Asp	
455 460 465	
gta gag ctc ctt gga gac tgc gat gtt ata att aat gag ttg tgt cat	1496
Val Glu Leu Leu Gly Asp Cys Asp Val Ile Ile Asn Glu Leu Cys His	
470 475 480	
agg cta ggt ggt gaa tat gcc aaa ctt tgt tgt aac cct gta aag ctt	1544
Arg Leu Gly Gly Glu Tyr Ala Lys Leu Cys Cys Asn Pro Val Lys Leu	
485 490 495	
tca gaa att act gaa aaa cct cca cgc cca caa aag gaa ttg gtt cat	1592
Ser Glu Ile Thr Glu Lys Pro Pro Arg Pro Gln Lys Glu Leu Val His	
500 505 510 515	
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Leu Ser Glu Leu Pro Pro Thr Pro Leu His Ile Ser Glu Asp Ser Ser	
520 525 530	
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Ser Pro Glu Arg Thr Val Pro Gln Asp Ser Ser Val Ile Ala Thr Leu	
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Ser Ser Cys Val Glu Glu Lys Pro Gln Glu Val Gln Thr Ser Arg Asn	
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630 635 640	
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Gly Ala Glu Val Tyr Ser Asp Ser Glu Asp Asp Val Leu Ser Ser Ser	
645 650 655	
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660 665 670 675	

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 680 685 690

ttg gaa gat gat acg gag agg ccc gaa tgt gct gga gga tct gga ttt 2168
 Leu Glu Asp Asp Thr Glu Arg Pro Glu Cys Ala Gly Gly Ser Gly Phe
 695 700 705

gga gct gat gga ggg gat caa gag gtt gtt aat gaa gct ata gct aca 2216
 Gly Ala Asp Gly Gly Asp Gln Glu Val Val Asn Glu Ala Ile Ala Thr
 710 715 720

aga cag gaa ttg aca gat gta aac tat cca tca gac aaa tca 2258
 Arg Gln Glu Leu Thr Asp Val Asn Tyr Pro Ser Asp Lys Ser
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<211> 737

<212> PRT

<213> Mus musculus

<400> 26

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 35 40 45
 Glu Pro Ser Ala Ala Val Ala Pro Ala Ala Ala Gly Cys Glu Ala Ala

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Asp	Asn	Gly	Ser 100	Gly	Leu	Arg	Arg	Glu 105	Pro	Arg	Ala	Ala	Asp 110	Asp	Phe	
Asp	Asp	Asp 115	Glu	Gly	Glu	Glu	Glu 120	Asp	Glu	Ala	Ala	Ala 125	Ala	Ala	Ala	
Ala	Ala 130	Ala	Ile	Gly	Tyr 135	Arg	Asp	Asn	Leu	Leu 140	Leu	Thr	Asp	Gly	Leu	
Leu 145	Thr	Asn	Gly	Phe 150	His	Ser	Cys	Glu	Ser	Asp 155	Asp	Asp	Asp	Arg	Thr	
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Ile	Leu	Lys 195	Asp	Leu	Leu	Pro	Glu 200	Thr	Ile	Pro	Pro	Pro 205	Glu	Leu	Asp	
Asp	Met 210	Thr	Leu	Trp	Gln 215	Ile	Val	Ile	Asn	Ile	Leu	Ser 220	Glu	Pro	Pro	
Lys 225	Arg	Lys	Lys	Arg 230	Lys	Asp	Ile	Asn	Thr	Ile 235	Glu	Asp	Ala	Val	Lys	
Leu	Leu	Gln	Glu	Cys 245	Lys	Lys	Ile	Ile	Val 250	Leu	Thr	Gly	Ala	Gly 255	Val	
Ser	Val	Ser 260	Cys	Gly	Ile	Pro	Asp 265	Phe	Arg	Ser	Arg	Asp 270	Gly	Ile	Tyr	
Ala	Arg	Leu 275	Ala	Val	Asp	Phe 280	Pro	Asp	Leu	Pro	Asp 285	Pro	Gln	Ala	Met	
Phe	Asp 290	Ile	Glu	Tyr	Phe 295	Arg	Lys	Asp	Pro	Arg	Pro 300	Phe	Phe	Lys	Phe	
Ala 305	Lys	Glu	Ile	Tyr 310	Pro	Gly	Gln	Phe	Gln 315	Pro	Ser	Leu	Cys	His	Lys	
Phe	Ile	Ala	Leu	Ser 325	Asp	Lys	Glu	Gly	Lys 330	Leu	Leu	Arg	Asn	Tyr 335	Thr	
Gln	Asn	Ile 340	Asp	Thr	Leu	Glu	Gln	Val 345	Ala	Gly	Ile	Gln 350	Arg	Ile	Leu	
Gln	Cys 355	His	Gly	Ser	Phe	Ala 360	Thr	Ala	Ser	Cys	Leu	Ile 365	Cys	Lys	Tyr	
Lys	Val 370	Asp	Cys	Glu	Ala 375	Val	Arg	Gly	Asp	Ile	Phe 380	Asn	Gln	Val	Val	
Pro 385	Arg	Cys	Pro	Arg 390	Cys	Pro	Ala	Asp	Glu	Pro 395	Leu	Ala	Ile	Met	Lys	
Pro	Glu	Ile	Val	Phe 405	Phe	Gly	Glu	Asn 410	Leu	Pro	Glu	Gln	Phe	His	Arg	
Ala	Met	Lys 420	Tyr	Asp	Lys	Asp	Glu 425	Val	Asp	Leu	Leu	Ile 430	Val	Ile	Gly	
Ser	Ser 435	Leu	Lys	Val	Arg	Pro 440	Val	Ala	Leu	Ile	Pro 445	Ser	Ser	Ile	Pro	
His	Glu 450	Val	Pro	Gln	Ile	Leu 455	Ile	Asn	Arg	Glu	Pro 460	Leu	Pro	His	Leu	
His 465	Phe	Asp	Val	Glu 470	Leu	Leu	Gly	Asp	Cys	Asp 475	Val	Ile	Ile	Asn	Glu	
Leu	Cys	His	Arg	Leu 485	Gly	Gly	Glu	Tyr 490	Ala	Lys	Leu	Cys	Cys	Asn	Pro	
Val	Lys	Leu 500	Ser	Glu	Ile	Thr	Glu 505	Lys	Pro	Pro	Arg	Pro 510	Gln	Lys	Glu	

Leu Val His Leu Ser Glu Leu Pro Pro Thr Pro Leu His Ile Ser Glu
 515 520 525
 Asp Ser Ser Ser Pro Glu Arg Thr Val Pro Gln Asp Ser Ser Val Ile
 530 535 540
 Ala Thr Leu Val Asp Gln Ala Thr Asn Asn Asn Val Asn Asp Leu Glu
 545 550 555 560
 Val Ser Glu Ser Ser Cys Val Glu Glu Lys Pro Gln Glu Val Gln Thr
 565 570 575
 Ser Arg Asn Val Glu Asn Ile Asn Val Glu Asn Pro Asp Phe Lys Ala
 580 585 590
 Val Gly Ser Ser Thr Ala Asp Lys Asn Glu Arg Thr Ser Val Ala Glu
 595 600 605
 Thr Val Arg Lys Cys Trp Pro Asn Arg Leu Ala Lys Glu Gln Ile Ser
 610 615 620
 Lys Arg Leu Glu Gly Asn Gln Tyr Leu Phe Val Pro Pro Asn Arg Tyr
 625 630 635 640
 Ile Phe His Gly Ala Glu Val Tyr Ser Asp Ser Glu Asp Asp Val Leu
 645 650 655
 Ser Ser Ser Ser Cys Gly Ser Asn Ser Asp Ser Gly Thr Cys Gln Ser
 660 665 670
 Pro Ser Leu Glu Glu Pro Leu Glu Asp Glu Ser Glu Ile Glu Glu Phe
 675 680 685
 Tyr Asn Gly Leu Glu Asp Asp Thr Glu Arg Pro Glu Cys Ala Gly Gly
 690 695 700
 Ser Gly Phe Gly Ala Asp Gly Gly Asp Gln Glu Val Val Asn Glu Ala
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 Ile Ala Thr Arg Gln Glu Leu Thr Asp Val Asn Tyr Pro Ser Asp Lys
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 Ser

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1 5

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Leu Ile Asn Lys Glu Lys
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gtc ccg agg gcc ccc acc ccg ttc cca tgg ccg agc cgg acc gat tca	95
Val Pro Arg Ala Pro Thr Pro Phe Pro Trp Pro Ser Arg Thr Asp Ser	
20 25 30	
gac tcg gac act gag gga gga gcc act ggt gga gag gca gag atg gac	143
Asp Ser Asp Thr Glu Gly Gly Ala Thr Gly Gly Glu Ala Glu Met Asp	
35 40 45	
ttc ctg agg aat tta ttc acc cag acc ctg ggc ctg ggt tcc caa aag	191
Phe Leu Arg Asn Leu Phe Thr Gln Thr Leu Gly Leu Gly Ser Gln Lys	
50 55 60	
gag cgt ctt cta gac gag ctg acc ctc gaa gga gtg aca cgc tac atg	239
Glu Arg Leu Leu Asp Glu Leu Thr Leu Glu Gly Val Thr Arg Tyr Met	
65 70 75	
cag agc gag cgc tgc cgc aag gtc atc tgt ttg gtg gga gcc gga atc	287
Gln Ser Glu Arg Cys Arg Lys Val Ile Cys Leu Val Gly Ala Gly Ile	
80 85 90 95	
tcc acg tcc gcg ggt atc cct gac ttc cgc tcc ccg tcc act ggc ctc	335
Ser Thr Ser Ala Gly Ile Pro Asp Phe Arg Ser Pro Ser Thr Gly Leu	
100 105 110	
tat gca aac ctg gag aag tac cac ctt cct tac cca gag gcc atc ttt	383
Tyr Ala Asn Leu Glu Lys Tyr His Leu Pro Tyr Pro Glu Ala Ile Phe	
115 120 125	
gag atc agc tac ttc aag aaa cat ccg gaa ccc ttc ttt gcc ctt gcc	431
Glu Ile Ser Tyr Phe Lys Lys His Pro Glu Pro Phe Phe Ala Leu Ala	
130 135 140	
aag gag ctc tat ccc ggg cag ttc aag cca acc atc tgc cac tac ttc	479
Lys Glu Leu Tyr Pro Gly Gln Phe Lys Pro Thr Ile Cys His Tyr Phe	
145 150 155	
atc cgc ctg ctg aag gag aag ggg ctg ctg ctg cgc tgc tac acg cag	527
Ile Arg Leu Leu Lys Glu Lys Gly Leu Leu Leu Arg Cys Tyr Thr Gln	
160 165 170 175	
aac ata gac acg ctg gaa cga gtg gcg ggg ctg gag ccc cag gac ctg	575
Asn Ile Asp Thr Leu Glu Arg Val Ala Gly Leu Glu Pro Gln Asp Leu	
180 185 190	
gtg gag gcc cac ggc acc ttc tac aca tca cac tgt gtc aac acc tcc	623
Val Glu Ala His Gly Thr Phe Tyr Thr Ser His Cys Val Asn Thr Ser	
195 200 205	

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 Cys Arg Lys Glu Tyr Thr Met Gly Trp Met Lys Glu Lys Ile Ser Gln
 210 215 220

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 Leu Arg Asn Leu Phe Thr Gln Thr Leu Gly Leu Gly Ser Gln Lys Glu
 50 55 60
 Arg Leu Leu Asp Glu Leu Thr Leu Glu Gly Val Thr Arg Tyr Met Gln
 65 70 75 80
 Ser Glu Arg Cys Arg Lys Val Ile Cys Leu Val Gly Ala Gly Ile Ser
 85 90 95
 Thr Ser Ala Gly Ile Pro Asp Phe Arg Ser Pro Ser Thr Gly Leu Tyr
 100 105 110
 Ala Asn Leu Glu Lys Tyr His Leu Pro Tyr Pro Glu Ala Ile Phe Glu
 115 120 125
 Ile Ser Tyr Phe Lys Lys His Pro Glu Pro Phe Phe Ala Leu Ala Lys
 130 135 140
 Glu Leu Tyr Pro Gly Gln Phe Lys Pro Thr Ile Cys His Tyr Phe Ile
 145 150 155 160
 Arg Leu Leu Lys Glu Lys Gly Leu Leu Leu Arg Cys Tyr Thr Gln Asn
 165 170 175
 Ile Asp Thr Leu Glu Arg Val Ala Gly Leu Glu Pro Gln Asp Leu Val
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 Glu Ala His Gly Thr Phe Tyr Thr Ser His Cys Val Asn Thr Ser Cys
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<221> VARIANT
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<223> Xaa = Thr or Val

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